

REMARKS**Summary of the Office Action**

In the Office Action dated October 24, 2003, claims 1-4 and 8-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter of the invention. Claims 1-4 and 8-13 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,410,414 B1 to Lee (hereinafter "Lee") in view of U.S. Patent No. 6,441,467 B2 to Toyosawa (hereinafter "Toyosawa").

Summary of the Response to the Office Action

Applicants have amended independent claims 1 and 8 to address the rejections under 35 U.S.C. § 112, second paragraph. Applicants traverse the rejections of claims 1-4 and 8-13 under 35 U.S.C. § 103(a).

The Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-4 and 8-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for allegedly failing to particularly point out and distinctly claim the subject matter of the invention.

Applicants have amended independent claims 1 and 8 as provided herein to address the rejections under 35 U.S.C. § 112, second paragraph. With regard to independent claim 8, the Office Action states that "the barrier layer covers the entire surface around the contacting hole of the inter layer dielectric layer not the silicon nitride film." Applicants respectfully submit that, as

depicted in Figures 1 and 4 and as discussed at least at pages 5-6 of the original specification as filed, the silicon nitride film 16s covers an entire top surface of the interlayer dielectric 16 and a portion of the first interconnect layer 14 the around the contacting hole (contacting hole H in Figure 4). Moreover, as depicted in Figures 1 and 5 and as discussed at least at page 6, lines 26-28 of the original specification as filed, the barrier layer 19s covers the exposed portion of the interlayer dielectric 14 through the contacting hole and a portion of the surface of the silicon nitride film 16s around the contacting hole, thereby forming the barrier layer region 19s.

In light of this amendment and the foregoing discussion, Applicants respectively submit that claims 1-4 and 8-13 fully comply with the requirements of 35 U.S.C. § 112, second paragraph. Accordingly, Applicants respectfully request that the rejection of claims 1-4 and 8-13 under 35 U.S.C. § 112, second paragraph, be withdrawn.

The Rejections under 35 U.S.C. § 103(a)

Claims 1-4 and 8-13 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,410,414 to Lee (hereinafter "Lee") in view of U.S. Patent No. 6,441,467 to Toyosawa (hereinafter "Toyosawa").

Applicants have amended independent claims 1 and 8 as set forth above to address the rejections under 35 U.S.C. § 112, second paragraph. This amendment is not being made to overcome any prior art. Applicants respectfully submit that no subject matter is being relinquished by this amendment. To the extent that the rejection under 35 U.S.C. § 103(a) set forth above would be reapplied to these claims as amended, it is respectfully traversed for the following reasons.

Applicants respectfully submit that, in the instant invention as recited in the claims, an upper metal interconnect layer is formed with gold. In contrast, Toyosawa merely discloses forming gold-bumps to protect electrode pads. Applicants respectfully submit that the bump of Toyosawa is not analogous to the interconnect layer of the instant invention because of their technical differences and distinct functionalities with regard to their applications in semiconductor devices.

Further, Applicants respectfully submit that, in the instant invention as recited in the claims, planarization is performed using a dielectric material. In contrast, the planarization of Toyosawa is performed by SOG. Accordingly, the planarization of Toyosawa does not produce the planarization problems which are solved in the instant invention. Thus, Applicants submit that Toyosawa lacks the motivation to provide the gold interconnect layer to address the particular problems associated with the dielectric planarization of the instant invention.

In view of the foregoing, Applicants respectfully submit that Toyosawa does not teach the gold interconnect layer of the instant invention. Moreover, Lee fails to cure the deficiencies of Toyosawa. Thus, Applicants respectfully submit that independent claims 1 and 8, as amended, are allowable over Lee in view of Toyosawa. Applicants further submit that dependent claims 2-4 and 9-13 should be allowed at least because of their respective dependence upon allowable claims 1 and 8, and for the additional features that they recite. Accordingly Applicants respectfully request that the rejections of claims 1-4 and 8-13 under 35 U.S.C. § 103(a) be withdrawn.

CONCLUSION

In view of the foregoing, Applicants respectfully request entry of the amendments to place the application in clear condition for allowance or, in the alternative, in better form for appeal. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution.

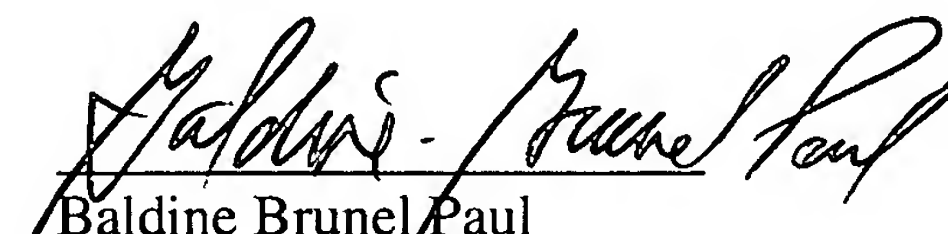
EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a CONSTRUCTIVE PETITION FOR EXTENSION OF TIME in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

MORGAN, LEWIS & BOCKIUS LLP

Dated: January 26, 2004

By:


Baldine Brunel Paul
Registration No. 54,369

Customer No. 09629
MORGAN, LEWIS & BOCKIUS LLP
1111 Pennsylvania Avenue, N.W.
Washington, DC 20004
202-739-3000 (Phone)
202-739-3001 (Fax)